# CCA GCA ACC AAT GAT GCC CGT T-TAMRA-3' CA GCA ACC AAT GAT GCC CGT T-TAMRA-3'

CCA GCA AGC ACT GAT GCC TGT T-TAMRA-3' CA GCA AGC ACT GAT GCC TGT T-TAMRA-3'

### Fig. 1A

#### Fluorescent Dyes

	Absorbance Maxima	Emission Maxima
Fluorescein	494nm	525nm
Tetrachloro fluorescein	521nm	536nm
TAMRA	565nm	580nm

## Fig. 1B

### **Cleaved Fragments:**

Fig. 1C

Fig.

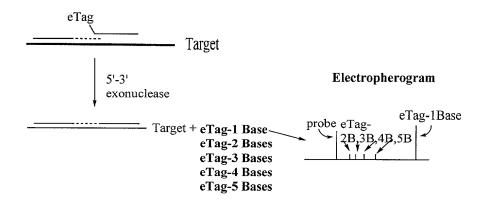


Fig. 3A

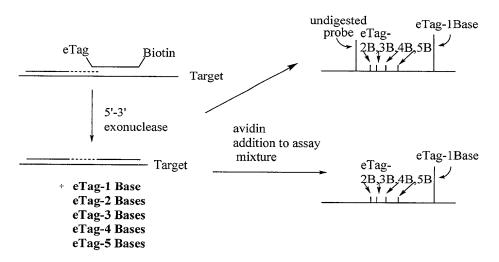


Fig. 3B

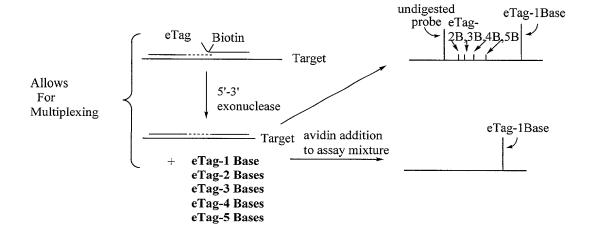


Fig. 3C

Fig. 3D

Fig. 4

e-tag Reporter	Elution Time on CE, min	Mass
HO COOH  HN OPO OH  HO OH  OH  OH  OH  OH  OH  OH  OH	6.4	778
CI COOH  CI ON N	IH₂ <sup>►</sup> N 7.1	925
HO O O O O O O O O O O O O O O O O O O	7.3	901
CI CI COOH  NH  CI CI O-P-O-ON  NH  OH  OH	l <sub>2</sub> N 7.7	994
CI COOH OHO OHO OHO OHO OHO OHO OHO OHO OHO	8.0	985
HO O O O O O O O O O O O O O O O O O O	9.25	961

Fig. 5

e-tag Reporter	Charge	Elution Time, min
O_Fluorescein		
HN () 0-P-C <sub>3</sub> C <sub>3</sub> C <sub>3</sub> C <sub>3</sub> C <sub>3</sub> -	√dC -8	12.1*
O <sub>s &gt;</sub> Fluorescein		
HN () O-P-O-C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C 5 O- O-Fluorescein	-9 dC	12.7
HN (-) 0-P-O-C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C	6-dC	12.8
O Fluorescein  O P-O-C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C  O Fluorescein		13.1
O Fluorescein  HN () O P O C <sub>3</sub> C <sub>3</sub> C <sub>9</sub>	- <b>6</b> dC	13.0
HN( $\frac{1}{5}$ O-P-O- $\frac{1}{5}$ C <sub>6</sub> C <sub>6</sub> C <sub>6</sub> C <sub>6</sub>	-6	13.4
O Fluorescein  HN O P-O-C <sub>3</sub> C <sub>3</sub> O Fluorescein	-5	12.8*
OFFluorescein  HN  OP-O-C <sub>3</sub> C <sub>9</sub> dC	-5	13.2*
O Fluorescein  HN  O P-O-C <sub>9</sub> C <sub>9</sub> O Fluorescein  HN  O P-O-TTTdC	-5	14.8
HN ( ) 0-P-0-TTTdC	-6	17.3
O Eluorescein	-5	17.0
HN () O-P-O-TTdC  O Fluorescein  HN () O-P-O-C <sub>9</sub> O Fluorescein  HN () O-P-O-TdC  O Fluorescein  HN () O-P-O-TdC	-4	15.2*
HN ( ) O-P-O-TdC	-4	16.5

Fig. 6

Fig. 7

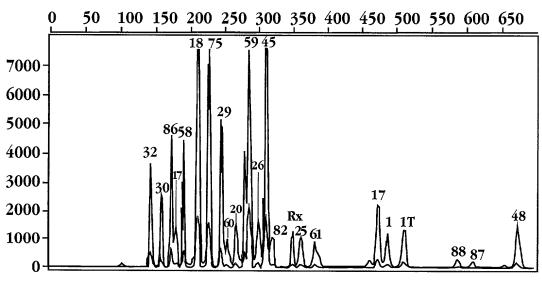


Fig. 8

Fig. 9

(9 negative charges per coupling)

Fig. 10

Fig. 11

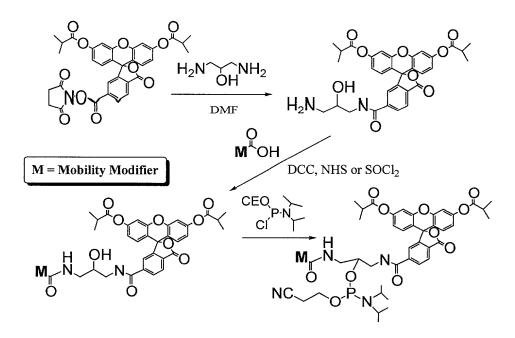
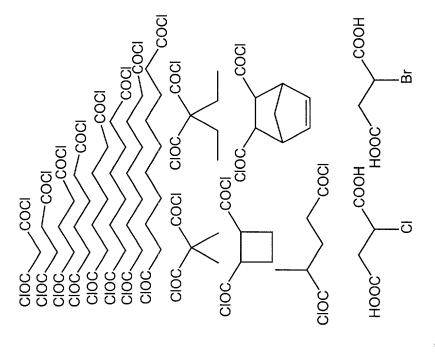


Fig. 12

$$\begin{array}{c} \text{HO} \\ \text{OO} \\ \text{OH} \\ \text{H}_2\text{O} \\ \text{H}_2\text{O} \\ \text{H} \\ \text{H} \\ \text{O} \\ \text{H} \\ \text{O} \\ \text{Pyridine} \\ \text{H} \\ \text{O} \\ \text{Pyridine} \\ \text{H} \\ \text{O} \\ \text{Pyridine} \\ \text{H} \\ \text{O} \\ \text{H} \\ \text{O} \\ \text{Pyridine} \\ \text{H} \\ \text{O} \\ \text{H} \\ \text{O} \\ \text{Pyridine} \\ \text{H} \\ \text{O} \\ \text{H} \\ \text{O} \\ \text{CEO} \\ \text{P-N} \\ \text{CEO} \\ \text{P-N} \\ \text{CEO} \\ \text{P-N} \\ \text{CI} \\ \text{P-N} \\ \text{CEO} \\ \text{P-N} \\ \text{CI} \\ \text{P-N} \\$$

Fig. 13



-CONH<sub>2</sub>

CH30H H2N

 $H_2N$ 

Ψ

OH H<sub>2</sub>N

 $H_2N$ 

HO/HO.

 $H_2N$ 

 $H_2N$ 

H<sub>O</sub>

SBnOMe OH

SBn OH H<sub>2</sub>N

.S. OH H<sub>2</sub>N,

Fig. 14

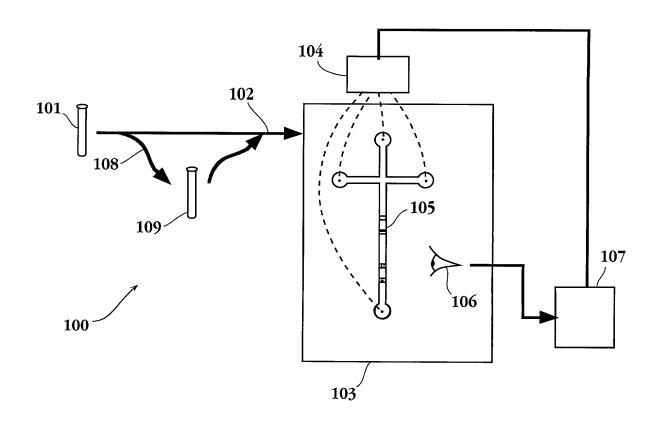


Fig. 16

### ACLA001 ACLA007 Fluorescein Fluorescein ACLA008 ACLA002 Fluorescein ΗŃ ACLA003 ACLA009 Fluorescein dTdC<sup>Br</sup> ACLA004 ACLA010 **Fluorescein** Fluorescein (dT)3dC ACLA005 ACLA011 Fluorescein \_Fluorescein ACLA006 ACLA012 Fluorescein

Fig. 17A

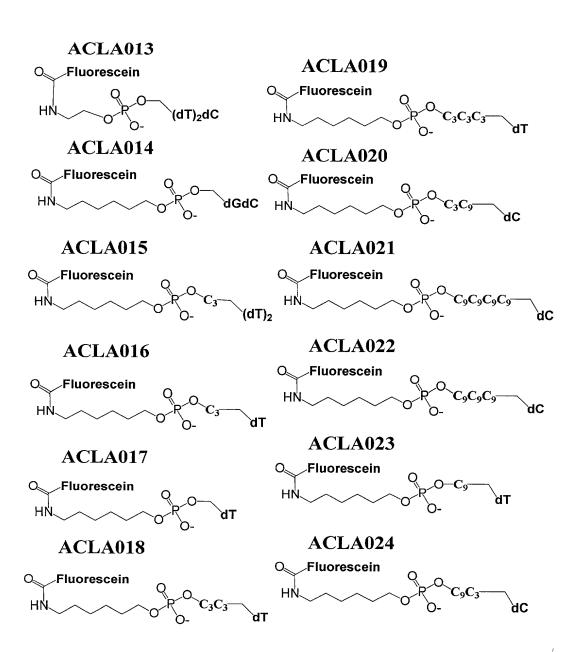


Fig. 17B

### ACLA031 ACLA025 Fluorescein Fluorescein ΗŊ ACLA032 ACLA026 Fluorescein Fluorescein ΗŃ ACLA033 ACLA027 Fluorescein Fluorescein ACLA034 ACLA028 Fluorescein Fluorescein (dT)₄dC HN ACLA035 ACLA029 Fluorescein Fluorescein (dT)<sub>3</sub> ACLA036 ACLA030 Fluorescein Fluorescein HN dTdG

Fig. 17C

Fig. 17D

### ACLA048

### ACLA049

#### Fluorescein

### ACLA050

### ACLA051

### ACLA052

### ACLA053

### ACLA054

O Fluorescein 
$$C_4$$
  $C_4$   $C_4$   $C_4$   $C_4$   $C_4$ 

### ACLA055

### ACLA056

### ACLA057

### ACLA058

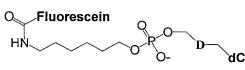
O Fluorescein
HN 
$$C_9C_9C_9C_9C_9$$
dC

### ACLA059

Fluorescein 
$$C_3C_3C_3C_3$$

Fig. 17E

# ACLA060 Fluorescein ACLA061 ACLA061 Fluorescein HN ACLA062



# ACLA063 Control of the control of t

# ACLA064 Fluorescein HN DDD d

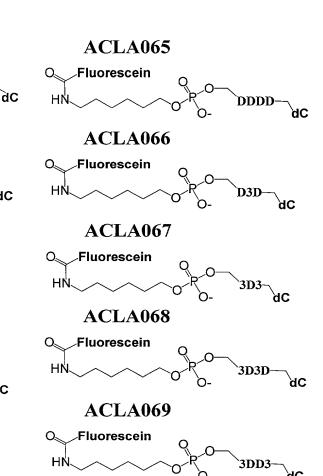


Fig. 17F

Fig. 17G

Fig. 17H

### ACLA089

### Fluorescein

### ACLA090

### Fluorescein

$$C_3C_3C_3TC_3$$
 d T—O  $C_9$ —dO

### ACLA091

Fluorescein

### ACLA092

### Fluorescein

### ACLA093

### Fluorescein

### ACLA094

### Fluorescein

$$C_{12}$$
  $C_{12}$  d T  $C_{9}$  dC

### ACLA095

### Fluorescein

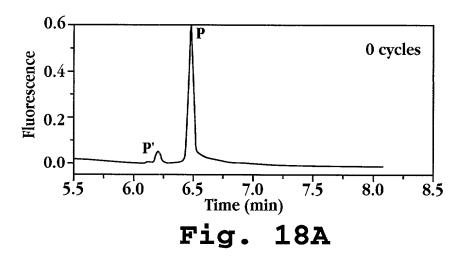
### ACLA096

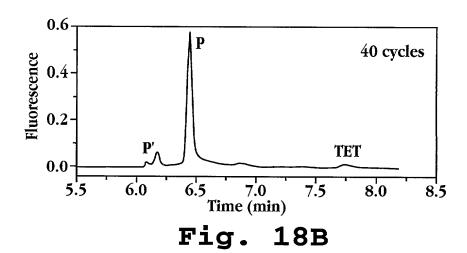
### Fluorescein

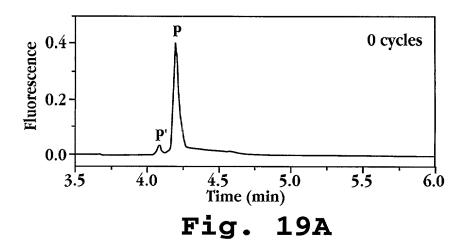
### ACLA097

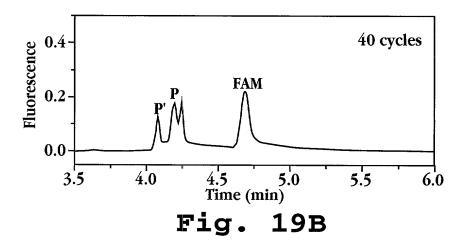
Fig. 17I

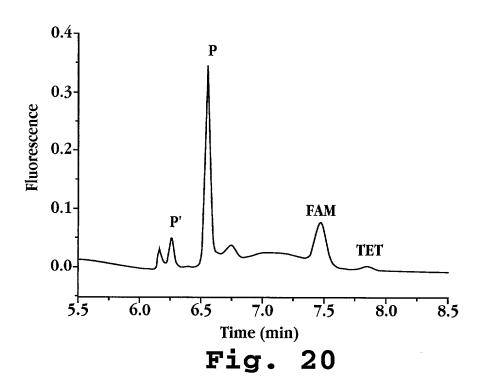
Fig. 17J











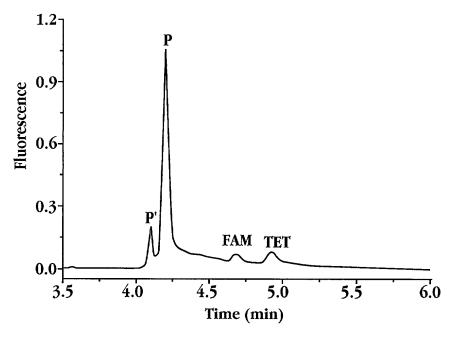


Fig. 21

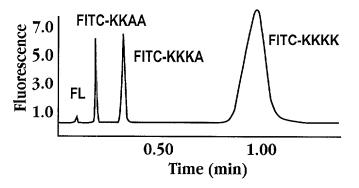


Fig. 22

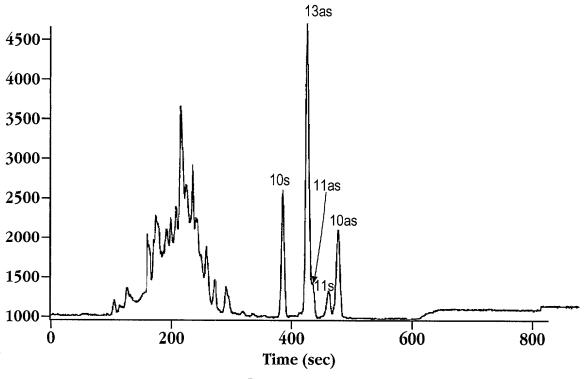
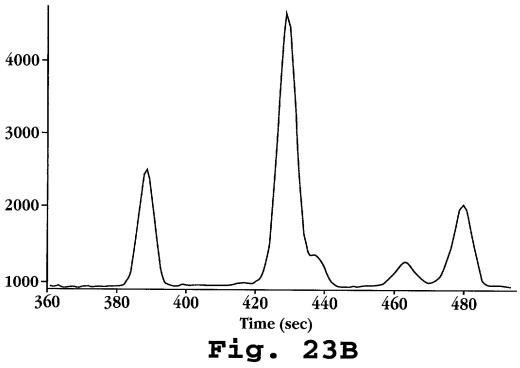


Fig. 23A



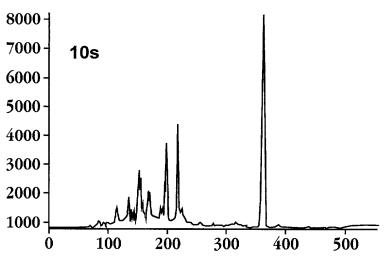
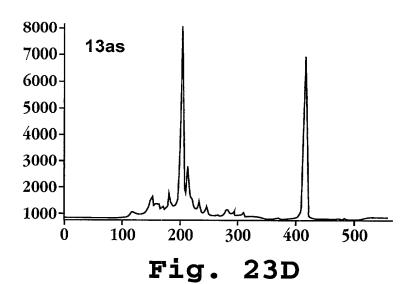


Fig. 23C



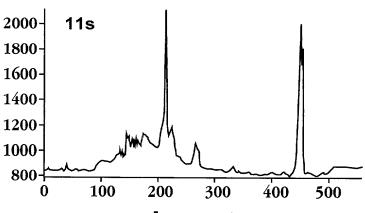


Fig. 23E

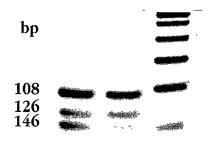


Fig. 23F

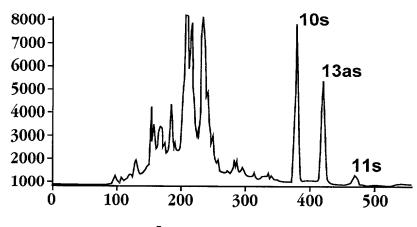


Fig. 23G

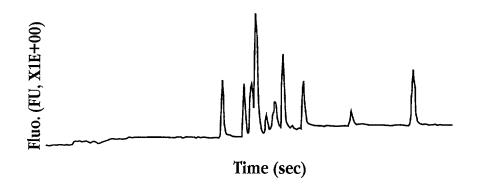


Fig. 24

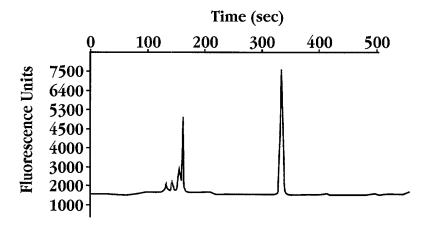


Fig. 25A

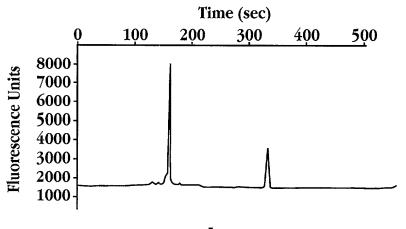
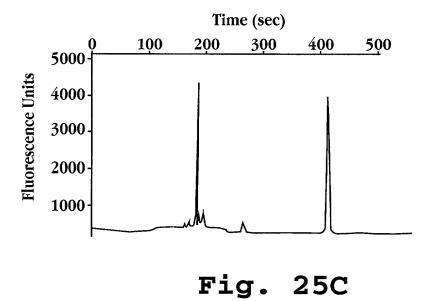


Fig. 25B



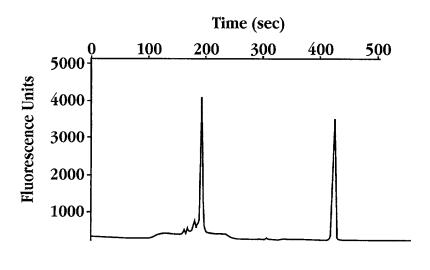


Fig. 25D

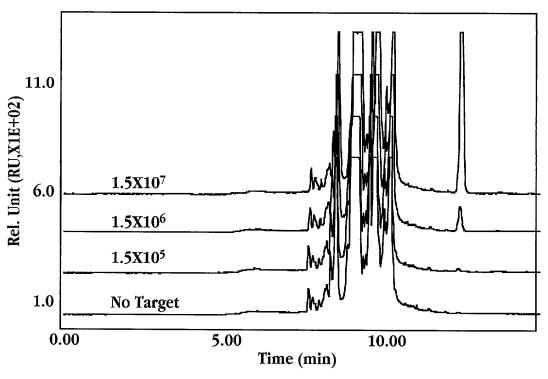


Fig. 26

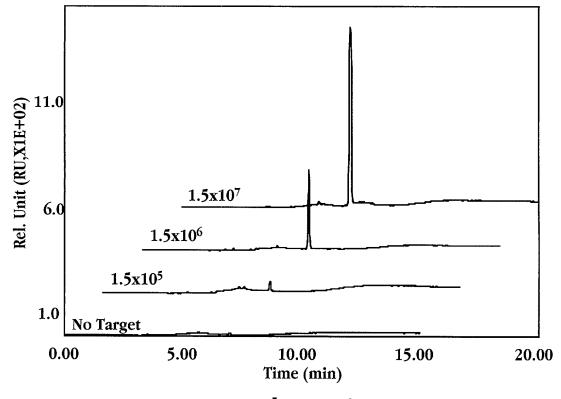


Fig. 27

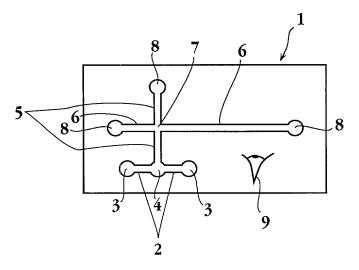


Fig. 28A

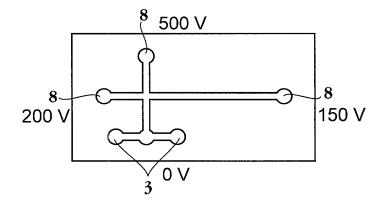


Fig. 28B

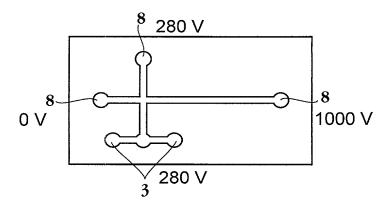


Fig. 28C

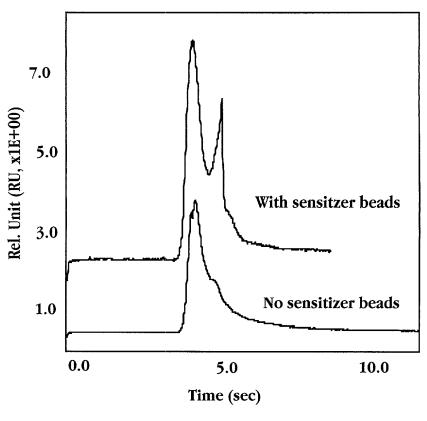
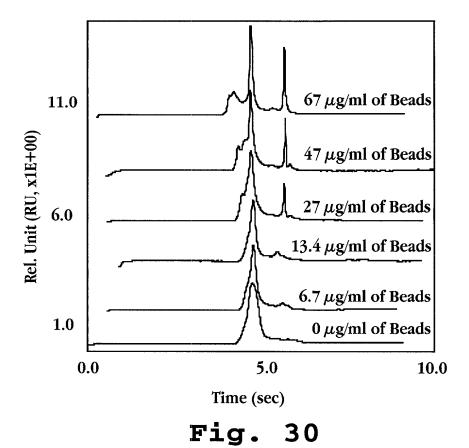


Fig. 29



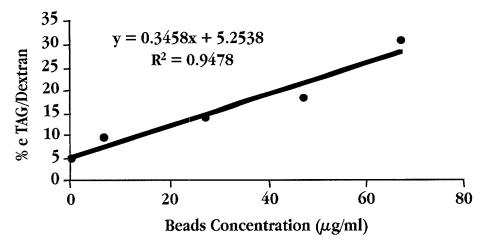


Fig. 31

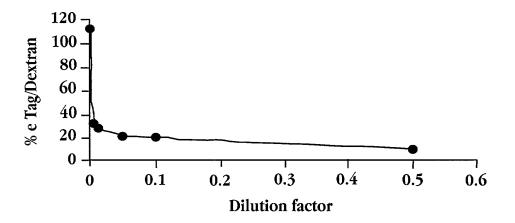
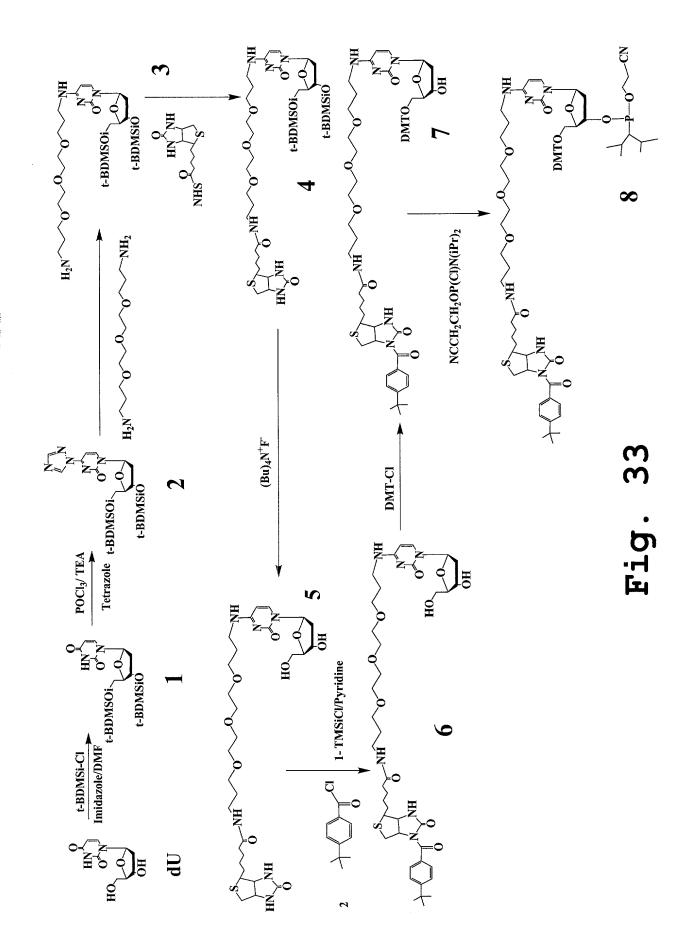


Fig. 32



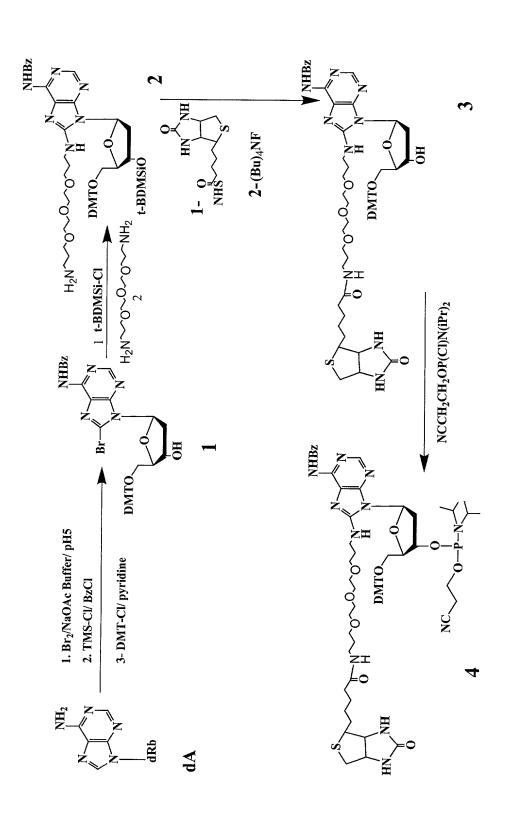


Fig. 34